MTConnect Agent Verifier

Version 1.1.1
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Terminology

Adapter An optional software component that connects the Agent to the Device.

Agent A process that implements the MTConnect specification, acting as an interface to the device.

Application A process or set of processes that access the MTConnect Agent to perform some task. An example would be a monitoring application that graphs spindle speed.

Attribute A part of an element that provides additional information about that element. For example, the name element of the Device is given as <Device name="mill-1">...</Device>

Component A part of a Device that can have sub-components and data items. A component is a basic building block of a device.

Device A piece of equipment capable of performing an operation. A device is composed of a set of components that provide data to the application. The device is a separate entity with at least one Controller managing its operation.

HTTP Hypertext Transport Protocol The protocol used by all web browsers and web applications to communicate over the Internet or intranet.

Introduction

MTConnect is an open communications standard developed to facilitate the exchange of data on the manufacturing floor from machine tools and sensors. These machines tools such as lathes, CNC milling, laser cutting, waterjets, etc. and other computer controlled machines allow plant managers and applications to monitor activities, focus on process improvements, and respond to alarm conditions in a timely fashion.

Further information about MTConnect can be found on the MTConnect website: http://www.mtconnect.org/. MTConnect open source software can be found at: https://github.com/mtconnect.

This document describes the Agent Verifier that was built on Microsoft .NET technology that can be used to verify MTConnect Agent functionality. The MTConnect Verifier uses the NUnit open source unit testing framework for Microsoft .NET using C#. NUnit serves the same purpose as JUnit does in the Java world, and is one of many in the xUnit family.

The MTConnect Verifier runs a defined set of test cases against any MTConnect Agent that adheres to the MTConnect 1.1 standard. It uses a graphical user interface that indicates the test id, description and a color indicator for pass, fail or no test.

Installation and Operation

Installation

To install the verifier, please do the following:

1. Log on to the target computer with an account that has administrator privileges.
2. If not already installed, please install the Microsoft .NET Framework Version 2.0 (or newer) on the computer.
3. If not already installed, please install NUnit version 2.5.7 on the computer. It can be found here: http://launchpad.net/nunitv2/2.5/2.5.7/+download/NUnit-2.5.7.10213.msi.
4. Obtain the installation zip file (i.e. MTConnect Verifier-v1.1.1.zip)
5. Expand the zip file into a known location.

Operation

To run the verifier, please do the following:

1. Change the value of <DeviceURI> in mtcverifier.ini to the address of the agent you wish to verify (i.e. http://agent.mtconnect.org). The mtcverifier.ini file can be found in the installation directory at: \MTConnect-Verifier-v1.x.x \src\MTConnectVerifier\ bin\release\conf
2. Double click MTConnectVerifier.nunit located in the installation directory at: \MTConnect-Verifier-v1.x.x \src\MTConnectVerifier\ bin\release.
3. When the Verifier GUI appears, click the run button. This will start the tests that will take several minutes.
4. You can choose which tests to run by clicking the test names in the left pane of the GUI.
5. After the tests have run, the results can be viewed in the left pane of the GUI. A green icon means the test passed, red means failed, and yellow means the test could not be performed. Detailed information about the tests can be viewed in the right pane.

Sample output from the verifier is shown in the figure 1. The left side shows the test cases that have been run and the right side shows the results of the tests. Green icons indicate passed test and the red icon indicates the test failed. A yellow icon indicates the test could not be performed.

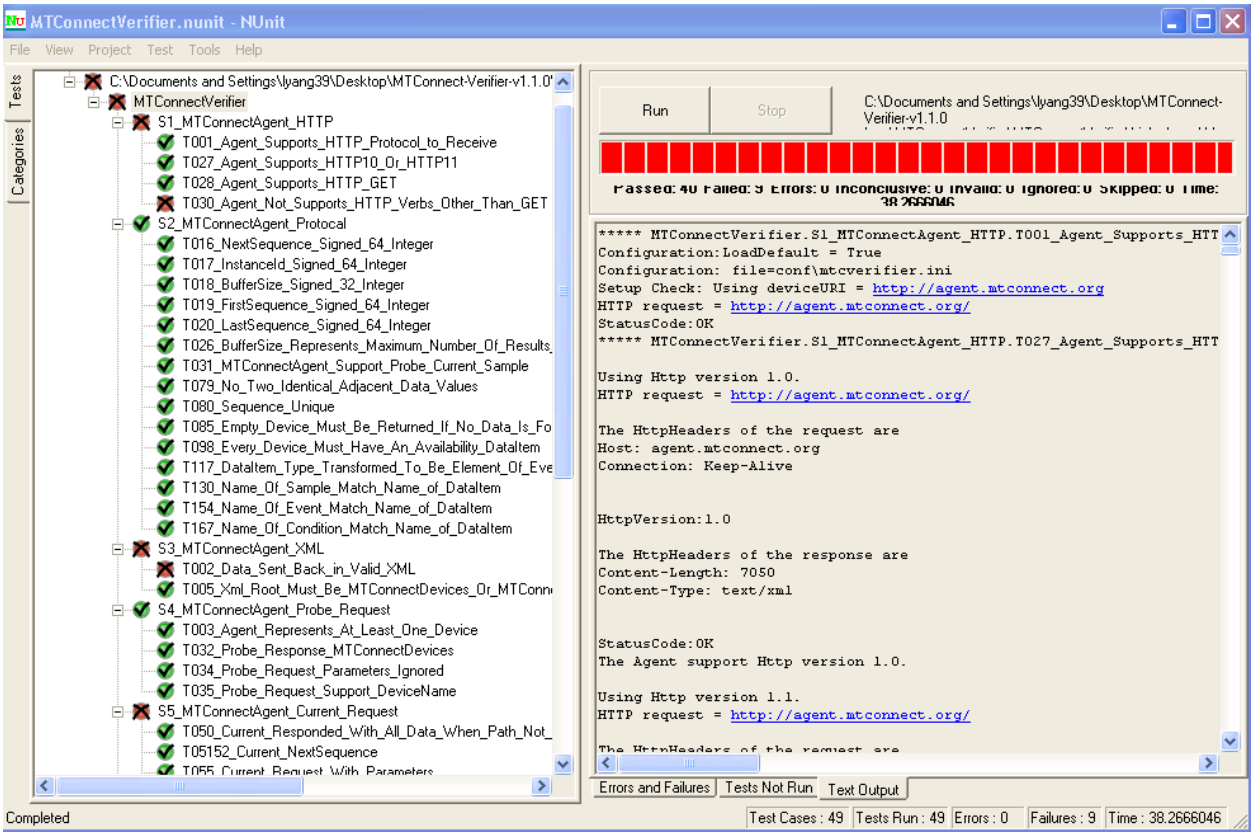

Figure 1. Sample output from the verifier showing the test cases run and the results.

The tests cases are divided into eight groups as follows:

1. Agent – MTConnectAgent_HTTP
2. Agent – MTConnectAgent_Protocal
3. Agent – MTConnectAgent_XML
4. Agent – MTConnectAgent_Probe_Request
5. Agent – MTConnectAgent_Current_Request
6. Agent – MTConnectAgent_Sample_Request
7. Agent – MTConnect_Error
8. Agent – MTConnectAgent_Devices

MTConnect Verifier Package Structure

The MTConnect Verifier Client is delivered as a zip file which contains the following directories:

\ MTConnect-Verifier-v1.x.x\doc
This directory contains the MTConnect Verifier documentation.

\ MTConnect-Verifier-v1.x.x\src
This is the source directory that contains the MTConnect Verifier solution file and the project directories which include all the source code.

Verifier Configuration

Upon startup, the verifier configures itself based upon values in the configuration file. The configuration file is an xml file named mtcverifier.ini, containing elements as listed in the table below and adheres to mtcverifier.xsd schema. Both files are located under \MTConnect-Verifier-v1.x.x \src\MTConnectVerifier\ bin\release\conf.

Configuration File Elements		
Element Name	Description	Usage
Company	The Company name used in the LDAP entry.	A string that contains only letters or numbers.
DeviceName	The name of the MTConnect Device.	A string that contains only letters or numbers.
Description	The LDAP Description of the Device.	A valid string.
DeviceURI	The MTConnect URI for the device.	A valid URI to the MTConnect Agent.
CreateNewLogFile	Should the old log file be deleted and new on started?	true or false (case insensitive)
UseLogFile	Should debug items be logged to a file?	true or false (case insensitive)

Comments or Questions

The Factory Information Systems Lab at Georgia Tech (www.fis.gatech.edu) developed the verifier. For further information, please contact:

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